

CLAIMS

What is claimed is:

1. A method of presenting information regarding products, suppliers and offeror to customers in a virtual shopping mall comprising:

- 5 providing a map of a virtual shopping mall, said map having a coordinate system associated with positions within the shopping mall;
 assigning a customer an initial position having a set of coordinates within the shopping mall;
 presenting at least one multimedia object to a customer indexed to said
10 initial position;
 updating said initial position to a subsequent position responsive to a position change command from a customer; and
 presenting at least one multimedia object to a customer indexed to said subsequent position.
- 15 2. The method as set forth in Claim 1 wherein said steps of presenting multimedia a object comprise presenting a visual image of a mall or store interior.
3. The method as set forth in Claim 2 wherein said steps of presenting a visual image of a mall or store interior further comprise the steps of:
 providing a customer-selectable hot spot within said visual image; and
20 updating said customer's position responsive to selection of said hot spot.

4. The method as set forth in Claim 1 wherein said steps of presenting multimedia objects comprise presenting a sound clip representative of background sound within a mall or store interior.
5. A computer readable medium encoded with software causing a computer to perform the following actions:
- 5 provide a map of a virtual shopping mall, said map having a coordinate system associated with positions within the shopping mall;
- assign a customer an initial position having a set of coordinates within the shopping mall;
- 10 present at least one multimedia object to a customer indexed to said initial position;
- update said initial position to a subsequent position responsive to a position change command from a customer; and
- present at least one multimedia object to a customer indexed to said subsequent position.
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6. The computer readable medium as set forth in Claim 5 wherein said software for performing the action of presenting a multimedia object comprises software for presenting a visual image of a mall or store interior.
7. The computer readable medium as set forth in Claim 6 wherein said software
- 20 for presenting a visual image of a mall or store interior further comprises software for performing the actions of:
- provide a customer-selectable hot spot within said visual image; and

update said customer's position responsive to selection of said hot spot.

8. The computer readable medium as set forth in Claim 5 wherein said software for presenting a multimedia object comprises software for presenting a sound clip representative of background sound within a mall or store interior.

- 5 9. A shopping mall browser comprising:

a mall map display for showing a customer a geographical organization of a virtual mall contents, said map having a coordinate system associated with positions within the virtual shopping mall;

a customer position initializer for assigning an initial customer having a set of coordinates within the shopping mall;

a position tracker for updating said initial position to a subsequent position responsive to a position change command from a customer; and

a multimedia object presenter for presenting at least one multimedia object to a customer indexed to said initial position or said subsequent position.

10. The shopping mall browser as set forth in Claim 9 wherein said multimedia object presenter is adapted to present a visual image of a mall or store interior.

11. The shopping mall browser as set forth in Claim 10 wherein said multimedia object presenter is further adapted to provide a customer-selectable hot spot within said visual image and to update a customer position responsive to selection of said hot spot.

- Figure 1. The effect of the number of nodes on the accuracy of the proposed method. The accuracy is measured by the mean square error (MSE) of the estimated parameters. The number of nodes is varied from 10 to 100. The MSE of the estimated parameters decreases as the number of nodes increases. The MSE of the estimated parameters is approximately 0.001 for 100 nodes.